R·I·T

Title: Leitz Inspection Microscope

Semiconductor & Microsystems
Fabrication Laboratory **Revision: B** **Rev Date: 08/30/2011**

Approved by:

_____ / / _____ / /
Process Engineer Equipment Engineer

1 SAFETY PRECAUTIONS

1.1 **Hazard to the Tool -** Avoid manually moving the stage.

1.2 Hazard to the Operator - Stage motion may cause pinch points.

2 LOADING A WAFER

2.1 Verify that the motion control box has power. On the lower front panel, press the yellow Start button. The motion control box should light up.
2.2 Turn on the Leitz Illuminator Power Supply and the computer monitor.
2.3 Press the **FAST** button next to the tracking ball so that the red LED is lit.
2.4 Press the **LOAD** button to move the stage to the left rear load position.
2.5 Center the wafer on the chuck with the flat away from you.
2.6 Turn on the stage **Chuck Vacuum Valve** on top of the microscope near the back and verify that the wafer is held in place.
2.6 Press **HOME** to move the wafer under the stage.
2.7 The joystick is used to move the wafer around.
2.8 To slow down the joystick speed, press the **FAST** button on the Motion Control Box to turn off the red LED. Alternately you may use the track ball to move the wafer slowly.

3 FOCUSING

4.1 Press the ↓ button on the Focus Control Box to place the stage at the lower limit. This will help prevent the wafer from hitting the objective lens
3.2 To bring the image into focus use the ↓↑ arrows on the Focus Control Box.
3.3 If there is not enough travel with the focus buttons, then coarse manual adjustment may be necessary.
3.4 The objectives may be rotated by hand.

5 REMOVING A WAFER

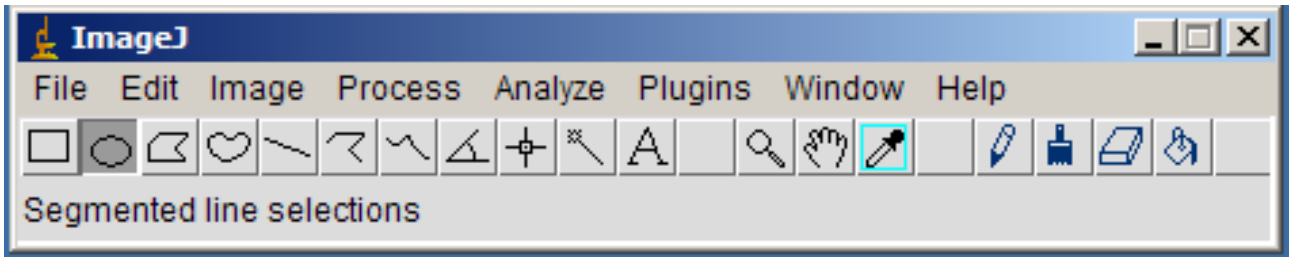
5.1 Set the objective lens back to 1 to avoid wafer damage.
5.2 Press Fast next to the tracking ball to light up the LED.
5.3 Press Load.
5.4 Turn off the vacuum and remove the wafer.
5.5 If no one else needs to use the microscope, turn off the Illuminator Power Supply, press the red Stop button on the lower left panel and turn off the computer monitor.

6 TAKING A PICTURE

6.1 Log in to the computer. The username is **SMFL** and the password is **Microscope01**. The system is not connected to the network so there are no individual desktops.
6.2 Open the **Osprey Swiftcap** software.
6.3 On the upper right hand side of the microscope make sure the slider is set for TV View (push in). The picture should appear on the screen.
6.4 The Illumination should be reduced to give a good picture on the screen.
6.5 To capture a picture select **CTRL P** on the keyboard. Give the file a name, type and location.

7 USING THE MEASUREMENT SOFTWARE

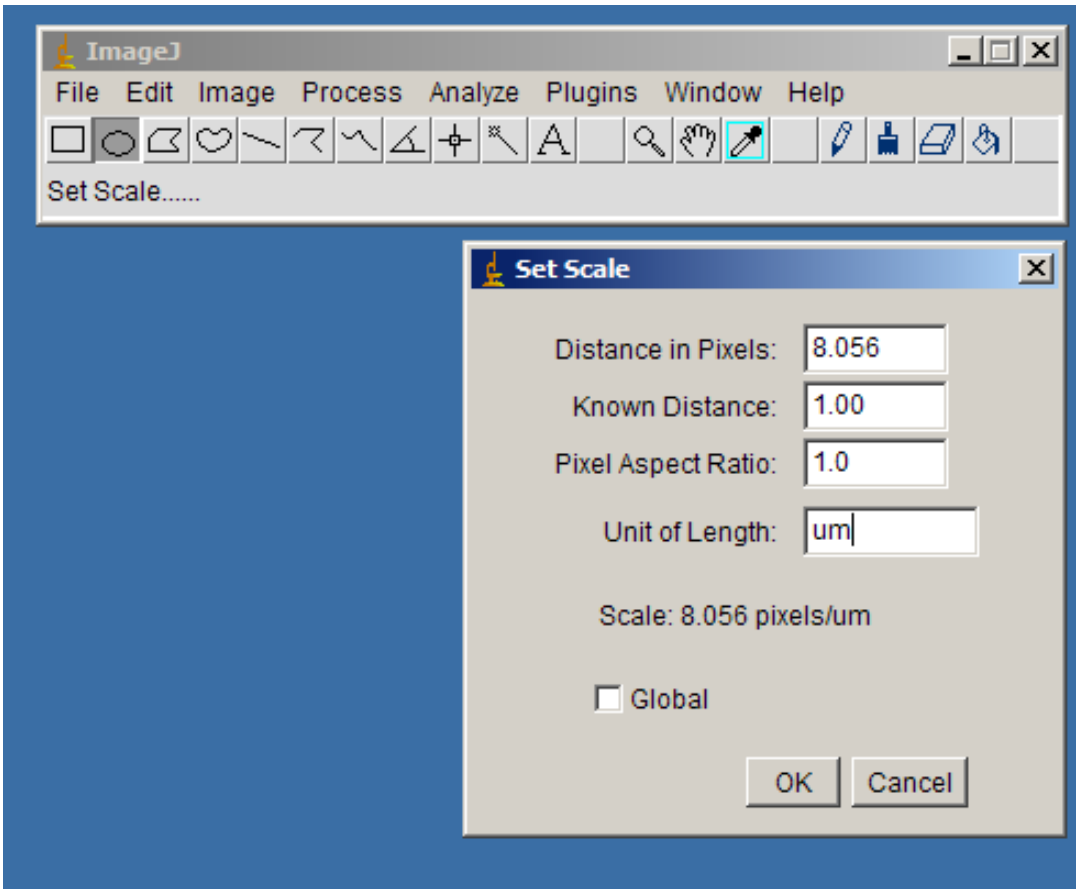
7.1 Open the **ImageJ** software. It is also available free on the internet for use on your own computer.



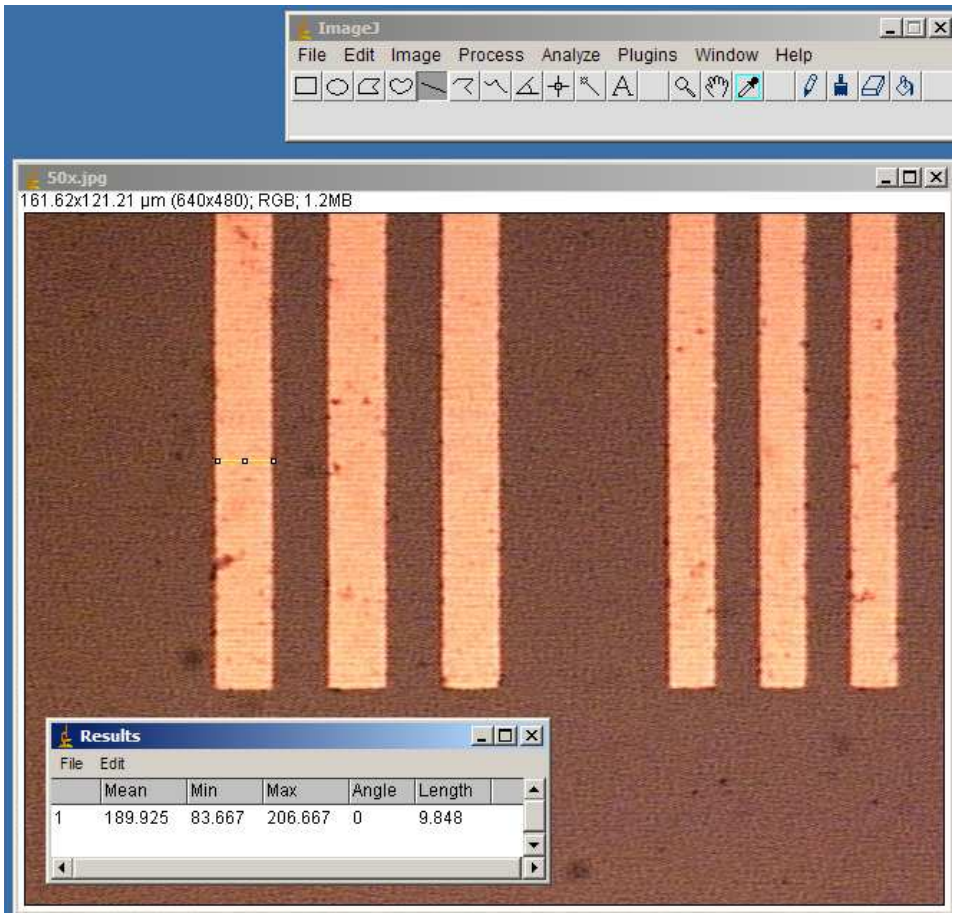
7.2 Under **File** select **Open** and then select a saved picture.

7.3 Under **Analyze** select **Set Scale** and enter in the following, depending on the microscope lens.

Microscope Lens	Distance in Pixels	Known Distance	Pixel Aspect Ratio	Unit of Length
10x	0.8	1.00	1.0	um
20x	1.6	1.00	1.0	um
50x	4.0	1.00	1.0	um
125x	10.0	1.00	1.0	um



7.4 On the ImageJ toolbar select the button with the shape or line you want to measure. Use the line to measure line width and the box to measure area.
On your picture use the mouse to draw a line to measure line width or a box to measure area.



7.5 Under **Analyze** select **Measure** to display the results.

REVISION RECORD

Summary of Changes	Originator	Rev/Date
Original Issue	Sean O'Brien	A-03/04/2004
Reworked entire document to reflect Osprey Swiftcap and Image J Software installation.	Sean O'Brien	B-08/30/2011